

What is claimed is as follows:

1. A cylindrical expandable stent comprising:
  - a plurality of undulating band-like elements, the band-like elements having alternating peaks and troughs, aligned on a common longitudinal axis to define a generally tubular stent body, the peaks and troughs taking a generally longitudinal direction along the cylinder, and
    - a plurality of interconnecting elements each interconnecting element having a first end and a second end, the first and second ends extending from adjacent band-like elements, the first and second ends displaced circumferentially along the stent.
- 5 10 2. The stent of claim 1, wherein the band-like elements comprise first and second band-like elements, the first band-like elements having a first selected wavelength, the second band-like elements having a second selected wavelength, the second selected wavelength longer than the first wavelength.
- 15 3. The stent of claim 2 wherein the first and second band-like elements alternate over the length of the stent and each interconnecting element extends from a first band-like element to a second band-like element.
4. The stent of claim 3 wherein adjacent first and second band-like elements are connected with two or more interconnecting elements.
5. The stent of claim 3 wherein the first band-like elements are characterized by a 20 first amplitude and the second band-like elements are characterized by a second amplitude, the second amplitude greater than the first amplitude.
6. The stent of claim 3 wherein adjacent interconnecting elements extending from peaks on a first band-like element are spaced five peaks apart on the first band-like element.
- 25 7. The stent of claim 3 wherein adjacent interconnecting elements extending from a trough on a second band-like element are spaced three troughs apart on the second band-like element.
8. The stent of claim 3 wherein the peaks on the first band-like elements are circumferentially displaced on the periphery of the stent from the troughs on adjacent 30 second band-like elements.
9. The stent of claim 2 wherein interconnecting elements extend from peaks on first band-like elements to troughs on adjacent second band-like elements and from peaks on second band-like elements to troughs on adjacent first band-like elements.

10. The stent of claim 1 wherein each interconnecting element extends from a position intermediate a peak and an adjacent trough on a first band-like element to a position intermediate a trough and an adjacent peak on a second band-like element.
11. The stent of claim 1 wherein adjacent band-like elements are about 180° out of phase with one another.  
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12. The stent of claim 1 wherein each of the interconnecting elements consists of a first shank, a second shank and a link disposed in-between the first and second shanks, the first shank extending in a longitudinal direction from the peak, the link substantially perpendicular to the first shank, and the second shank extending in a longitudinal direction from the trough and perpendicular to the link.  
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13. The stent of claim 1 wherein the interconnecting member is substantially perpendicular to the longitudinal axis of the stent.
14. The stent of claim 1 wherein each peak is connected with a second nearest trough on an adjacent band-like element.  
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15. The stent of claim 1 wherein adjacent band-like elements are about 90° out of phase with one another.
16. The stent of claim 1 wherein the interconnecting elements extend between a peak and a second closest trough on an adjacent band-like element.  
17. The stent of claim 1 wherein adjacent band-like elements are connected with five  
20 interconnecting elements.
18. The stent of claim 1 wherein adjacent interconnecting elements extending from peaks on a first band-like element are spaced three peaks apart on the band-like elements.
19. The stent of claim 1 wherein the interconnecting elements are rectilinear.  
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20. The stent of claim 19 wherein the interconnecting elements are straight.
21. The stent of claim 1 wherein the interconnecting elements include a portion which is curvilinear.
22. The stent of claim 1 wherein all of the band-like elements are of the same wavelength.
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23. The stent of claim 1 wherein the first and second ends of each interconnecting element are displaced longitudinally along the stent.

24. The stent of claim 1, the band-like elements comprising first and second band-like elements, the first band-like elements having more peaks than the second band-like elements.

25. A tubular, flexible, expandable stent having a longitudinal axis, comprising:

5           one or more cylindrical shaped first segments, each first segment having first struts having first and second ends, the first segment being defined by a member formed in an undulating pattern of interconnected paired first struts and in which adjacent pairs of first struts in a given first segment are interconnected at opposite ends,

10           one or more cylindrical shaped second segments, each second segment being defined by a member formed in an undulating pattern of interconnected paired second struts and in which adjacent pairs of second struts in a given second segment are interconnected at opposite ends,

15           the first struts being shorter than the second struts,  
              the first segments formed of a number of first struts and the second segments formed of a number of second struts, the number of first struts in a first segment exceeding the number of second struts in a second segment.

20           the first and second segments aligned on a common longitudinal axis to define a generally tubular stent body, the first and second segments present along the stent body, and

25           adjacent first and second segments connected by a plurality of interconnecting elements, each interconnecting element having a first end and a second end, each interconnecting element extending from an end of paired first struts on a first segment to an end of paired second struts on an adjacent second segment, each first end of an interconnecting element displaced circumferentially along the stent from each second end of an interconnecting element.

26. The stent of claim 25 where each first end of an interconnecting element is longitudinally displaced from each second end of an interconnecting element.

27. The stent of claim 25 where there are at least three interconnecting elements joining adjacent first and second segments.

30 28. The stent of claim 25 where adjacent interconnecting elements are separated by five pairs of first struts on the first segments and three pairs of second struts on the second segments.

29. The stent of claim 1 formed of a metal.

30. The stent of claim 29 wherein the metal is a shape memory alloy.
31. The stent of claim 1 wherein the stent is a thin-walled tubular member.
32. The stent of claim 1 in a self-expanding configuration.
33. The stent of claim 1 in a mechanically expandable configuration.

5    34. The stent of claim 1 comprising interconnecting elements of a plurality of different lengths.

35. The stent of claim 34 wherein adjacent band-like elements are interconnected by interconnecting elements of more than one length.
36. The stent of claim 1 comprising band-like elements whose wavelength varies  
10 along the band-like element.
37. The stent of claim 1 comprising band-like elements whose amplitude varies along the band-like element.